"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

SALCHINKIN, A.P.; LAPKOVA, L.B.

Oxidation of furfurole with sodium hypobromite in an alkali solution. Zhur.prikl.khim. 29 no.1:141-144 Ja '56. (MLRA 9:5)

1. Kafedra organicheskoy, fizicheskoy i kolloidnoy khimii Kubanskogo sel'skokhozyaystvennogo instituta.
(Furaldehyde) (Oxidation)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

SALCHINKIN, A.P.; LAPKOVA, L.B.

Production of furyl alcohol. Zhur.prikl.khim. 31 no.12:1902-1904 D '58. (MIRA 12:2)

1. Kafedra organicheskoy, fizicheskoy i kolloidnoy khimii Kubanskogo sel'skokhozyaystvennogo instituta.
(Furfuryl alcohol)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

PYATNITSKIY, M.P.; LAPKOVA, L.B.

Chemical mechanism of oxidation of furfurole by hydrogen peroxide. Zhur. prikl. khim. 36 no.10:2290-2295 O '63. (MIRA 17:1)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPKOVSKIY, V., plavil'shchik medeplavil'nogo zavoda (g. Noril'sk)

First results. Okhr.truda i sots.strakh. no.8:51-52 Ag '59.
(MIRA 12:11)

1. Noril'skiy gorno-metallurgicheskiy kombinat, vneshtatnyy tekhnicheskiy inspektor Krasnoyarskogo Kraysovprofa.
(Noril'ski--Steel industry--Hygienic aspects)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LYUTSERNOVA, O.A.; LAPNEKOV, L.P. (Leningrad)

Popular universities of health in Leningrad. Sov. zdrav. 22 no.7:20-24 '63 (MIRA 16:12)

1. Iz Leningradskogo gorodskogo Doma sanitarnogo prosveshcheniya (glavnyy vrach Geroy Sovetskogo Soyuza A.P.Sobolevskiy).

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPO, A.V.

Interpretation of the results of coal fractionation. Lit. i pol. iskop. no.3:114-119 My-Je '65. (MIRA 18:10)

1. Nauchno-issledovatel'skiy institut geologii Arktiki, Leningrad.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPO, Dmitriy Petrovich; TABUNINA, M.A., red.

[Safety engineering manual for operators of asphalt-concrete placers] Pamiatka po tekhnike bezopasnosti dlia mashinista asfal'tobetonoukladchika. Moskva, Stroiizdat, 1964. 34 p. (MIRA 17:4)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPO, Dmitriy Petrovich; TABUNINA, M.A., red.

[Safety manual for workers operating crushing equipment] Pamiatka po tekhnike bezopasnosti dlia rabochikh drobil'nykh ustanovok. Moskva, Stroiizdat, 1964. 30 p.
(MIRA 17:6)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPO, Dmitriy Petrovich

[Safety manual for working on scaffolds and trestles] Pamiatka po tekhnike bezopasnosti pri rabote na lesakh i podmostiakh. Moskva, Stroiizdat, 1965. 25 p.
(MIRA 18:8)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOCHKIN, I. A.

Lapochkin, I. A. -- "The Development of Detours Following Stenosis and Adhesions of the Descending Aorta and Its Principal Branches in Domestic Chickens and Geese. Anatomical-Experimental Investigation." Leningrad State Pedagogical Inst imeni A. I. Gertsen. Leningrad, 1956 (Dissertation for the Degree of Candidate in Biological Science)

So: Knizhnaya Letopis', No 12, 1956

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOCHKIN, I.A.

Ligature of branches of the upper mesenteric artery in fowl.
Uch. zap. VGPI 27:279-282 '62. (MIRA 16:8)

(Mesenteric arteries--Ligature)
(Pourtry--Physiology)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOCHKIN, I.A.

Time of the development of collaterals in poultry. Uch. zap. VGPI 27:283-288 '62. (MIRA 16:8)

(Blood--Circulation) (Poultry--Anatomy)
(Mesentric arteries--Ligature)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

KALININ, V.I.; KARATAYEV, I.A.; LAPOCHKIN, I.A.

Secretion and enzymatic properties of the glandular stomach in poultry following exclusion of the left gastric artery and vagus nerves. Uch. zap. VGPI 27:289-294 '62. (MIRA 16:8)

(Digestive organs--Birds)
(Stomach--Innervation)
(Stomach--Blood supply)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

KALININ, V.I.; KARATAYEV, I.A.; LAPOCHKIN, I.A.

Effect of methylthiouracil on the organism of swine. Uch. zap. VGPI 27:362-363 '62. (MIRA 16:8)

(Uracil--Swine--Feeding and feeds)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

SOV/86-58-10-22/40

AUTHOR: Lapochkin, O.P., Lt Col, Bocharov, N.V., Lt Col of Tech Service, and Chistyakov, V.A., Maj

TITLE: Studying Target Features With the Aid of Radar Photos (Izucheniye kharaktera tseli po radiolokatsionnym snimkam)

PERIODICAL: Vestnik vozdushnogo flota, 1958, Nr 10, pp 44-48 (USSR)

ABSTRACT: The author states that the target image as it appears on the radar screen should be studied carefully prior to a bombing mission under adverse weather conditions. For that purpose the image of the target on the radar screen should be photographed at various altitudes and on two or three approach directions to the target during the reconnaissance. The author then describes how such data are obtained and studied. Two photos, 1 diagram.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOCHKIN, Pavel Grigor'yevich; KAPLAN, M.Ya., redaktor; PUL'KINA, Ye.A., tekhnicheskiy redaktor

[My suggestion for efficient organization] Moi ratsionalizatorskie predlozheniia. Leningrad, Gos. izd-vo lit-ry po stroit. i arkhit., 1954. 22 p. (Novatory stroitel'noi industrii) (MLRA 8:5)

(Concrete slabs)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOCHKIN, P.G.

Chain conveyer for horizontal transportation of cement. Rats. i izobr. predl. v strei. no.117:22-24 '55. (MLRA 9:7)
(Conveying machinery)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOCHKIN, Pavel Grigor'yevich; KARPOV, V.V., kandidat tekhnicheskikh nauk, nauchnyy redaktor; ROTENBERG, A.S., redaktor izdatel'stva; PUL'KINA, Ye.A., tekhnicheskiy redaktor

[Wooden doors made of glued waste materials] Kleenye dveri iz drevesnykh otkhodov. Leningrad, Gos. izd-vo lit-ry po stroit. i arkhitekture, 1956. 30 p. (MIRA 10:1)
(Doors)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOCHKIN, P.G.

Combined wood finishing and jointing tool. Suggested by P.G. Lapochkin. Rats.i izobr.v stroi. no.9:75-76 '59.
(MIRA 13:1)

1. Po materialam stroitel'nogo tresta No.87 Glavleningradstroya, Leningrad, per. Pirogova, d.7.
(Woodworking machinery)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOCHKIN, P.G.

Combined machine for preparing and assembling shields. Suggested by P.G.Lapochkin. Rats.i izobr.predl.v stroi. no.14: 25-27 '60. (MIRA 13:6)

1. Direktor derevoobdelochnogo zavoda tresta No.87 Glavleningradstroya, g.Kolpino, Leningradskoy oblasti.
(Woodworking machinery)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

SZABO, St.; GYERGYAY, Fr.; LAPOHOS, Eva I.; GRIDNEVA, Alla L.

Experiments in encephalities. II. Behavior of the cryoagglutinins in rabbits treated with a suspension of heterologous brain. Comunicarile AR 12 no.2:255-259 F '62.

1. Academia R.P.R., Baza de cercetari stiintifice Tg. Mures si Catedra de fiziologie I. M. F., Tg. Mures. Comunicare prezentata de academician D. Miskolzy.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

SZABO, St.; GYERGYAY, Fr.; LAPOHOS, Eva I.; GRIDNEVA, Alla L.

Experiments in encephalitis. II. Behavior of the cryoagglutinins in rabbits treated with a suspension of heterologous brain. Comunicarile AR 12 no.2:255-259 F '62.

1. Academia R.P.R., Baza de cercetari stiintifice Tg. Mures si Catedra de fiziologie I. M. F., Tg. Mures. Comunicare prezentata de academician D. Miskolzy.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

SZABO, St.; BLAZSEK, Vl.; LAPOHOS, Eva I.; GRIDNEVA, Alla L.; LUKACS, Ecaterina.

Studies on experimental encephalopathy. Pt.13. Comunicarile AR 13 no.11: 1009-1014 N'63.

1. Baza de cercetari stiintifice Tg.-Mures a Academiei T.P.R. si Catedra de fiziologie, Institutul medico-farmaceutic, Tg.-Mures. Comunicare prezentata de academician D.Miskolczy.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

SZABO, St.; BARBU, Z.; LAPOHOS, Eva; GRIDNEVA, Alla L.; MODY, F.; BORS, Marta; MEZ, Olga; JAKAB, Fr.

Clinical and experimental investigations on autoantibodies in silicosis. Rumanian med. rev. 19 no.1:52-57 Ap-Je'65.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPONOGOV, A.N.

The Dnieper cascade. Geog. v shkole 23 no.5:10-15 S - O '60.
(MIRA 13:9)
(Dnieper River--Hydroelectric power stations)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPONOGOV, I.

Europe, Eastern - Public Works

On the road of peace, Vokrug sveta No. 11, 1952.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPONCGOV, I.

Europe, Eastern - Reclamation of Land

Changing land. Vokrug sveta No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPONOGOV, I.

Reclamation of Land - Europe, Eastern

Changing land. Vokrug sveta No. 3, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

1. LAPONOGOV, I.

2. USSR (600)

4. Electrification - Europe, Eastern

7. Electrification in national economy. Blok. agit. No. 15, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPONOGOV, I.; RUDIN, M.Z., podpolkovnik, redaktor; SOKOLOVA, G.F., tekhnicheskiy redaktor

[Hungarian People's Republic] Vengerskaia Narodnaia Respublika. Moskva, Voen. izd-vo Ministerstva oborony SSSR, 1954. 174 p. (Hungary--Description and travel) (MLRA 7:8)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPONOGOV, I.S.

MARKOS, Gyorgy; PECSI, Marton; SZABO, Laszlo; PAVLOV, L.I., [translator]; LAPONOGOV, I.S.; LEVINSON, V.G., redaktor fiziko-geograficheskoy chasti; LATYSHEVA, I.S., redaktor; GERASIMOVA, Ye.S., tekhnicheskiy redaktor

[The geography of Hungary. Abridged translation from the Hungarian] Geografiia Vengrii. Sokr. per. s vengerskogo L.I.Pavlova, Vstup. stat'ia I.S.Laponogova, red. fiziko-geog. chasti V.G.Levinsona. Moskva, Izd-vo inostr. lit-ry, 1954. 245 p. [Microfilm] (MLRA 8:3)
(Hungary--Geography)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPONOGOV, I.

Friendship and cooperation between socialist countries is getting stronger. Blok.agit.ved.transp. no.8:31-40 Ap '56. (MLRA 9:7)
(Foreign economic relations)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPONOGOV, Ivan Sergeyevich; ROZHDESTVENSKIY, P., red.; TROYANOVSKAYA,N., tekhn. red.

[In socialist Czechoslovakia]V Chekhoslovakii sotsialisticheskoi. Moskva, Gospolitizdat, 1962. 94 p. (MIRA 15:12)
(Czechoslovakia--Social conditions)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPONOGOV, O. A., Cand of Med Sci — (diss) "Clinic and Treatment of Inflammatory Processesx of the Posterior Cranial Cavity With an Occulsion of the Passages," Kiev, 1959, 16 pp (Kiev Medical Institute im A. A. Bogomolets) (KL, 2-60, 117)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPONOGOV, O.A.

Diagnosis and differential diagnosis of inflammatory occlusions in the fossa cranii posterior. Vrach.delo no.3:309 Mr '59. (MIRA 12:6)

1. Nauchno-issledovatel'skiy institut neyrokhirurgii.
(ENCEPHALITIS)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

GLUSHKOVA, I.S.; KANYUKA, Yu.I.; KOPYAKOVSKIY, Yu.I.; KOROL', A.P.; LAPONOGOV, O.A.; YANOVSKIY, G.I.

Focal and general brain symptoms of supratentorial tumors of varying histostructure. Probl.neirokhir. 4:19-32 '59. (MIRA 13:11)
(BRAIN--TUMORS)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPONOGOV, O.A. (Kiyev)

Surgical therapy of inflammatory occlusions of the posterior cranial fossa. Vop.neirokhir. 23 no.3:35-41 My-Je '59. (MIRA 12:8)

1. Nauchno-issledovatel'skiy institut neyrokhirurgii Ministerstva zdravookhraneniya USSR.

(BRAIN, dis.
inflamm. occlusion of posterior cranial fossa (Rus))

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

GLUSHKOVA, I.S.; LAPONOGOV, O.A.

Meningoencephalitis with hydrocephalus appearing as a brain tumor. Zhur. nevr. i psikh. 61 no.4:517-521 '61. (MIRA 14:7)

1. Institut neyrokhirurgii (dir. - prof. A.I.Arutyunov) Ministerstva zdravookhraneniya USSR, Kiyev.
(MENINGITIS) (ENCEPHALITIS) (HYDROCEPHALUS)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

ARUTYUNOV, A.I., prof.; LAPONOGOV, O.A., kand. med. nauk

Stereotaxic surgical therapy of extrapyramidal hyperkinesis.
Vop. neirokhir. no.1:1-5 '65. (MIRA 18:10)

1. Ukrainskiy nauchno-issledovatel'skiy institut neyrokhirurgii (direktor - prof. A.P. Romodanov), Kiyev.
2. Chlen-korrespondent AMN SSSR (for Arutyunov).

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L 6669-65
EWT(m)/EWP(q)/EWP(b) IJP(c) MJW/JD

ACCESSION NR: AR4036013 S/0276/64/000/003/G009/G009 51

SOURCE: Ref. zh. Tekhnol. mashinostr. Sv. t., Abs. 3G44

AUTHOR: Kachanov, N. N.; Sakhon'ko, I. M.; Pchelkina, V. M.; Laposhko, A. D.; Cyks, G. N.; Baranov, I. A.; Apsheles, I. I.

TITLE: The quality and properties of silicon-free bearing steel

CITED SOURCE: Tr. Vses. n.-i. konstrukt.-tekhnol. in-ta podshipnik. prom-sti, no. 1(33), 1963, 54-68

TOPIC TAGS: ShKh15 steel, silicon free steel, high purity steel, bearing steel, instrument bearing steel, stainless steel

TRANSLATION: An industrial method has been developed for making ShKh15 bearing steel, which does not contain silicon, making it possible to obtain metal with a smaller content of nonmetallic inclusions than is possible with ordinary steel-

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

steel, which does not contain silicon, making it possible with ordinary steel-
smaller content of nonmetallic inclusions than is possible with ordinary steel-
making methods. Silicon-free ShKhl5 steel can be used for making instrument
bearings and is recommended as an initial material for electroslag remelting.
The hardenability and annealability of silicon-free steel from the heats that

Card 1/2

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L 6669-65

ACCESSION NR: AR4036013

were tested were lower than in the case of ShKh15 steel produced by conventional methods. The contact resistance and strength properties, except for torsional strength, of silicon-free steel matched those of ShKh15 steel produced by conventional methods. The corrosion resistance in a 3% solution of NaCl of silicon-free ShKh15 steel was somewhat higher than that of ShKh15 steel produced by conventional methods. A drawback of the new industrial process is the instability of purity of the ShKh15 steel with respect to nonmetallic inclusions.

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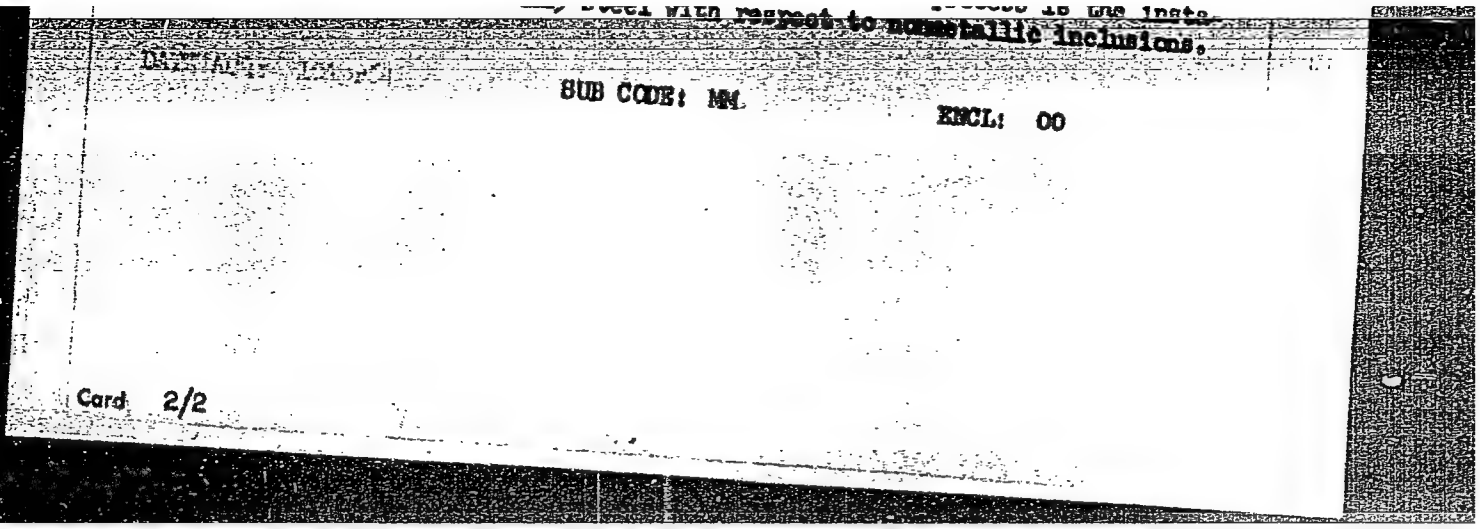

deals with respect to nonmetallic inclusions.

SUB CODE: MM

ENCL: 00

Card 2/2

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

S/137/62/000/012/042/085
A006/A101

AUTHORS: Larionova, D. S., Laposhko, L. D.

TITLE: The effect of alloying with tungsten and other components upon the quality of bearing steel

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 68, abstract 12I404 ("Tr. Vses. n.-i. konstrukt.-tekhnol. in-ta podshipnik. prom-sti", 1961, no. 2, (26) 95 - 107)

TEXT: Additional alloying with small W amounts of ШХ15 (ShKh15) steel of a standard composition was carried out for the purpose of obtaining steel with higher contact strength. The properties of steel alloyed with W were studied on a number of heats; as a result it was found that the macrostructure in ShKh15 steel with W was denser than in standard ShKh15 steel. The upper limit of quenching temperatures for ShKh15 steel with 0.15-1.13% W and ShKh15 steel is equal. For steel with 0.62% W and 0.72% Ni the upper and lower limits of quenching temperatures are shifted toward lower temperatures by about 20°C. During heating to 300°C, tempering stability of ShKh15 steel with W and ShKh15 steel is equal,

Card 1/2

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The effect of alloying with... S/137/62/000/012/042/085
A006/A101

and somewhat higher in ShKh15 steel with W and Ni. After quenching the amount of residual austenite in the structure of ShKh15 steel with W is lesser than in conventional steel. In ShKh15 steel with W and Ni the amount of residual austenite is higher than in ShKh15 steel. At 860 and 930°C the size of austenite grains is equal in ShKh15 steel with W and ShKh15 steel; it is less in ShKh15 steel with W and Ni. The roasting ability of ShKh15 steel with 0.36 to 1.13% W is higher than that of ShKh15 steel. The a_k of ShKh15 steel with W, and also with W and Ni, is higher than that of ShKh15 steel during quenching from 900°C and, particularly, after tempering at 200°C and more. Contact endurance of ShKh15 steel with 1.13% W is higher than that of conventional steel.

L. Koblikova

[Abstracter's note: Complete translation]

Card 2/2

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S/276/63/000/001/024/028
A006/A101

AUTHORS: Larionova, D. S., Laposhko, L. D.

TITLE: The effect of alloying with tungsten and other elements upon the quality of bearing steel

PERIODICAL: Referativnyy zhurnal, Tekhnologiya mashinostroyeniya, no. 1, 1963, 9, abstract 1057 ("Tr. Vses. n.-i. konstrukt.-tekhnol. in-ta podshipnik. prom-sti", 1961, no. 2 (26) 95 - 107)

TEXT: The macrostructure of grade ШХ15 (ShKh15) steel alloyed with tungsten, is more dense than that of standard ShKh15 steel. The upper limit of quenching temperatures for steel alloyed with tungsten (0.15 - 1.13%) and conventional steel ShKh15 are equal (determination from the structure). For steel alloyed with tungsten (0.62%) and nickel (0.72%) the upper and lower limits of quenching temperatures are shifted toward lower temperatures by about 20°C. In heating up to 300°C the stability against tempering of ShKh15 steel, alloyed with tungsten, and standard ShKh15 steel, is practically equal. Steel ShKh15 with tungsten and nickel shows a somewhat greater stability against tempering. After

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The effect of alloying with...

quenching the structure of ShKh15 steel with tungsten shows a lower content of residual austenite than that in conventional steel. With higher quenching temperature this difference increases with a higher tungsten content. In steel ShKh15 with tungsten and nickel, there is more residual austenite than in steel of this grade with a standard composition. In the investigated temperature ranges of quenching and tempering, changes in the dimensions of specimens of standard composition ShKh15 steel and steel alloyed with tungsten are practically equal. Additional alloying with nickel of ShKh15 steel with tungsten entails reduced changes in the dimensions during quenching and considerably greater changes in tempering as compared to ShKh15 steel of standard composition. At 860°C and 930°C the size of austenite grains of ShKh15 steel with tungsten and this steel grade of a standard composition are practically equal. The size of grains in ShKh15 steel with tungsten and nickel is smaller. Quenching ability of steel ShKh15 with tungsten from 0.36 to 1.13%, is higher than in the investigated standard composition steel. Highest quenching ability is obtained in steel with 0.82% tungsten. The quenching ability of this steel determined from the distance between the butt and the zone with hardness HRC $\leq$ 61, is twice as high as that of ShKh15 steel of standard composition, and only slightly below the quench-

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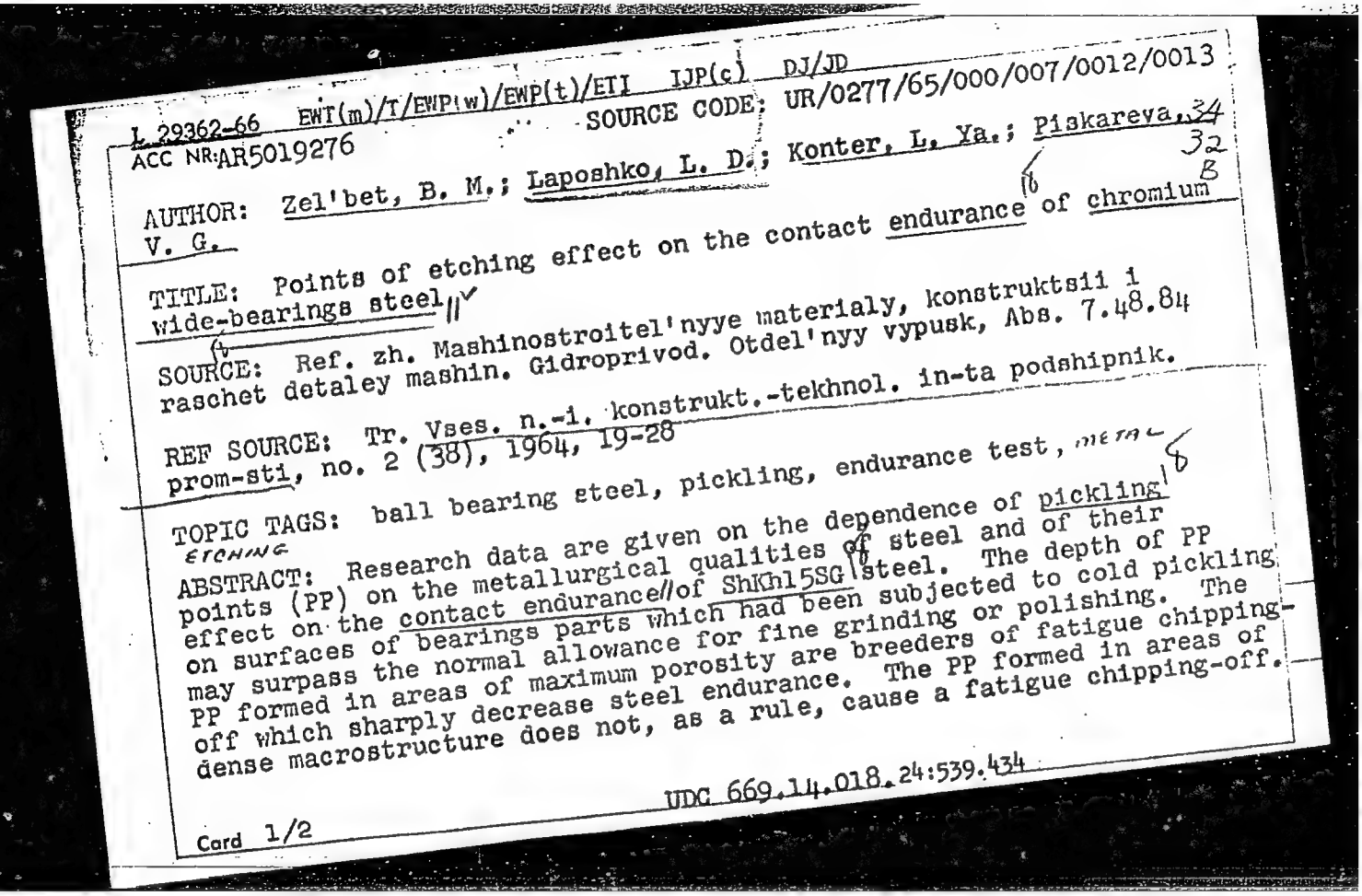

L 29362-66 EWT(m)/T/EWP(w)/EWP(t)/ETI IJP(c) DJ/JD
ACC NR: AR5019276 SOURCE CODE: UR/0277/65/000/007/0012/0013

AUTHOR: Zel'bet, B. M.; Laposhko, L. D.; Konter, L. Ya.; Piskareva, V. G.

TITLE: Points of etching effect on the contact endurance of chromium wide-bearings steel

SOURCE: Ref. zh. Mashinostroitel'nyye materialy, konstruktsii i raschet detaley mashin. Gidroprivod. Otdel'nyy vypusk, Abs. 7.48.84

REF SOURCE: Tr. Vses. n.-i. konstrukt.-tekhnol. in-ta podshipnik. prom-sti, no. 2 (38), 1964, 19-28

TOPIC TAGS: ball bearing steel, pickling, endurance test, metal etching

ABSTRACT: Research data are given on the dependence of pickling points (PP) on the metallurgical qualities of steel and of their effect on the contact endurance of ShKh15SG steel. The depth of PP on surfaces of bearings parts which had been subjected to cold pickling may surpass the normal allowance for fine grinding or polishing. The PP formed in areas of maximum porosity are breeders of fatigue chipping-off which sharply decrease steel endurance. The PP formed in areas of dense macrostructure does not, as a rule, cause a fatigue chipping-off.

UDC 669.14.018.24:539.434

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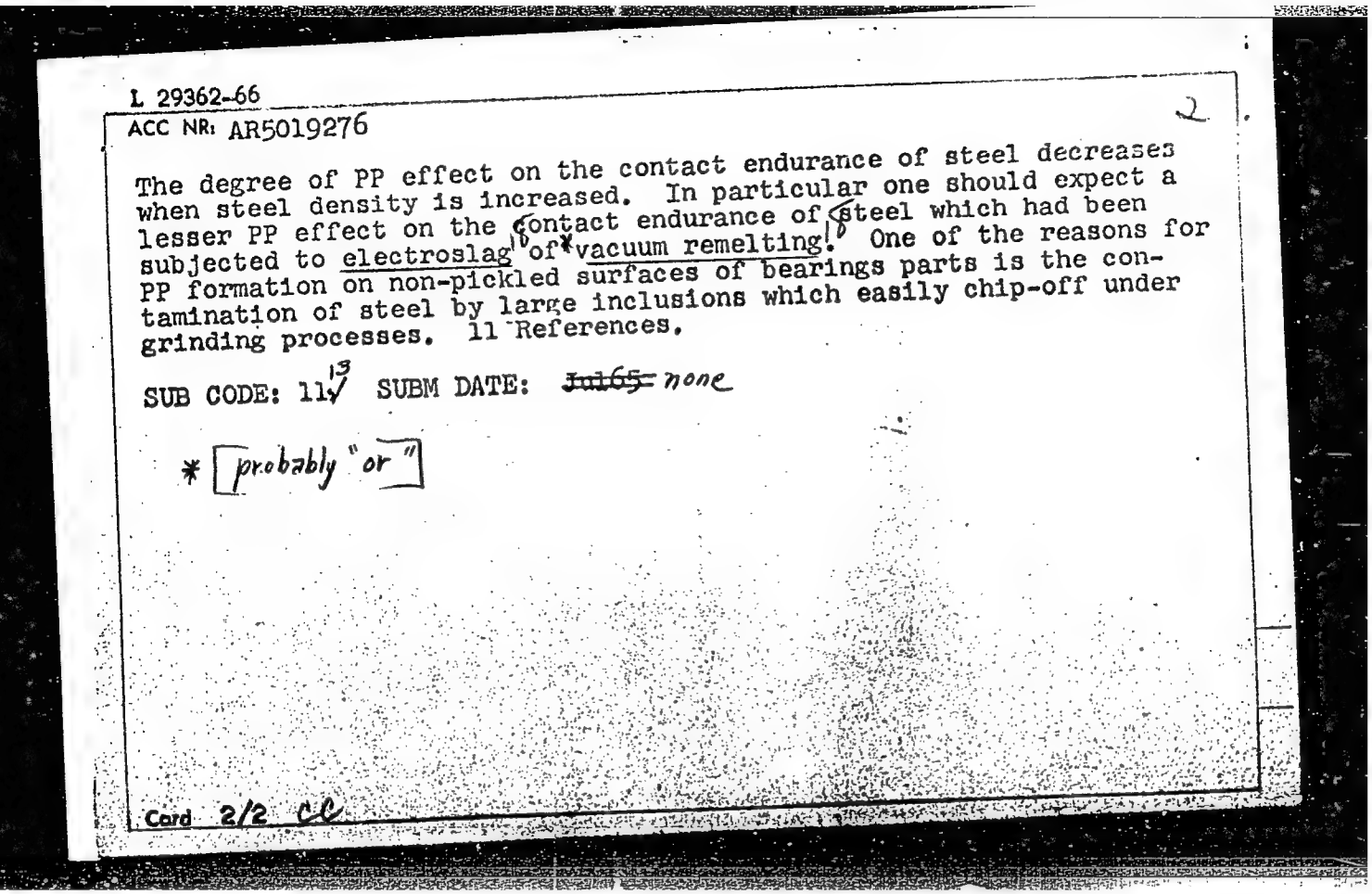

L 29362-66

ACC NR: AR5019276

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The degree of PP effect on the contact endurance of steel decreases when steel density is increased. In particular one should expect a lesser PP effect on the contact endurance of steel which had been subjected to electroslag or vacuum remelting. One of the reasons for PP formation on non-pickled surfaces of bearings parts is the contamination of steel by large inclusions which easily chip-off under grinding processes. 11 References.

SUB CODE: 11 13 SUBM DATE: ~~Jul65~~ none

* [probably "or"]

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOSTOL, P.

International conference on cyclotrons with a sectioned magnet system and meson accelerators. Atom. energ. 15 no.4:343-346 O '63. (MIRA 16:10)

1. CERN, Zheneva.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOT, Z., mgr.

Chemical raw materials for the textile industry. Przegl techn no.50:9 14 D '60.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOT, Zofia, mgr

Activities of the Committee of Power Management of the Provincial Committee of Cooperation of the Central Technical Organization for the Lodz Voivodeship in 1963.
Gosp paliw 12 no. 3:105-106 Mr '64

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

SEKACH, S.F.; LAPOTKO, Z.A. (Minsk)

Retinal pressure in thrombosis of the cervical segment of the internal carotid artery. Vop. neirokhir. 27 no.1:36-39 Ja-F'63. (MIRA 16:5)

1. Neyrokhirurgicheskoye otdeleniye Belorusskogo nauchno-issledovatel'skogo instituta nevrologii, neyrokhirurgii i fizioterapii.
(CAROTID ARTERY--DISEASES) (THROMBOSIS) (BLOOD PRESSURE)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOTNIKOV, K.N.

Device for measuring a slotted hole with involute splines. (MIRA 18:10)
Stan. i instr. 36 no.9:38 S '65.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOTNIKOV, K.N.

Device for measuring geometrical parameters of end mills. Stan. i instr. 31 no.9:35-36 S '60. (MIRA 13:9)
(Metal-cutting tools)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

ALMAZOV, V.A.; LAPOTNIKOV, V.A.; SELIVANOVA, M.K.; PETROVA, A.F.

Functional activity of leucopoiesis elements in leukemia.
Med. rad. 10 no.7:56-61 Jl '65. (MIRA 18:9)

1. Kafedra fakul'tetskoy terapii (zav. - prof. T.S.Istamanova) I Leningradskogo meditsinskogo instituta imeni I.P.Pavlova i otdel patologicheskoy anatomii (zav. - prof. L.V.Funshteyn) TSentral'nogo nauchno-issledovatel'skogo rentgeno-radiologicheskogo instituta, Leningrad.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOTNIKOV, V.I., nauchnyy redaktor; GLEZAROVA, I.L., redaktor;
DVORNIKOVA, N.I., tekhnicheskiy redaktor

[We are perfecting the production of asbestos cement tiles] Sovershenstvuem proizvodstvo shifera. Moskva, Gos. izd-vo lit-ry po stroitel'nym materialam, 1953. 36 p. (MLRA 7:9)
(Asbestos cement)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

KHVOSTENKOV, S. (g.Kramatorsk); MORDUKHOVICH, M. (g.Kramatorsk); LAPOTNIKOV, V.I. (g.Kramatorsk).

Colored slate. Stroi.mat., izdel. i konstr. 2 no.2:16 F'56. (MLRA 9:6)

1.Glavnyy inzhener tsementnogo zavoda (for Khvostenkov).2.Nachal'nik laboratorii (for Mordukhovich).3.Glavnyy inzhener Kramatorskogo shifernogo zavoda (for Lapotnikov).
(Roofing, Slate)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOTNIKOV, V.I., inzh.; SERDYUK, N.V., inzh.

Using mineral wool as a partial substitute for asbestos in making slate. Stroi. mat. 5 no.5:11-12 My '59. (MIRA 12:8)

(Mineral wool) (Roofing, Slate)

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LAPOTYSHKIN, Nikolay Mikhaylovich; MEDNIKOVA, A.N., tekhnicheskiy redaktor

[Combat engineers of a unit] Sapery odnoi chasti. Moskva, Voen. izd-vo M-va obor. SSSR, 1957. 122 p. (MLRA 10:9)
(Military engineers)

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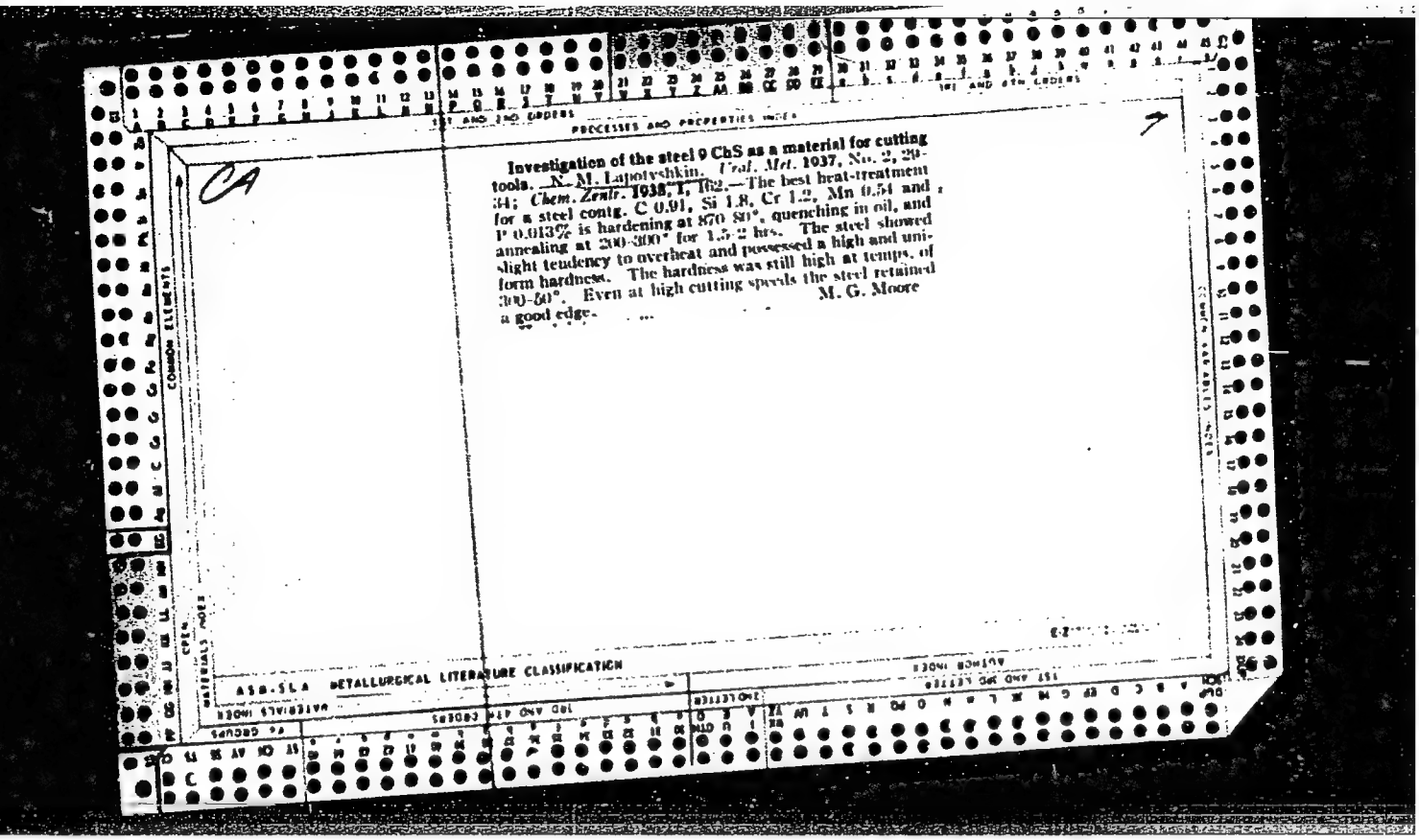

PROCESSES AND PROPERTIES INDEX

CA

Investigation of the steel 9 ChS as a material for cutting tools. N. M. Lapotyshkin. *Vest. Met.* 1937, No. 2, 29-34; *Chem. Zentr.* 1938, I, 182.—The best heat-treatment for a steel contg. C 0.91, Si 1.8, Cr 1.2, Mn 0.54 and P 0.013% is hardening at 870-80°, quenching in oil, and annealing at 200-300° for 1.5-2 hrs. The steel showed slight tendency to overheat and possessed a high and uniform hardness. The hardness was still high at temps. of 300-50°. Even at high cutting speeds the steel retained a good edge. M. G. Moore

COMMON ELEMENTS

MATERIALS INDEX

A58-5LA METALLURGICAL LITERATURE CLASSIFICATION

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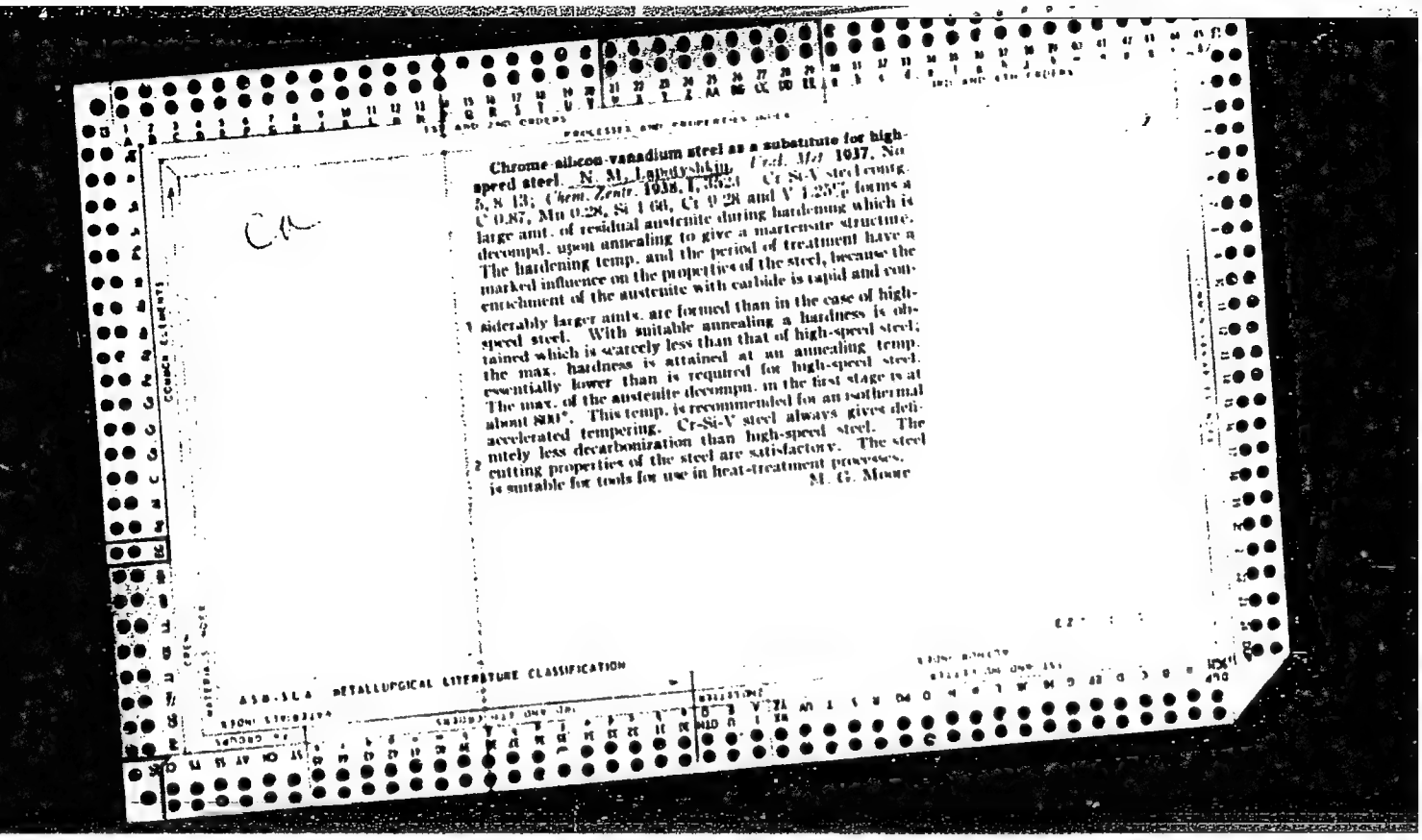

Chrome-silicon-vanadium steel as a substitute for high-speed steel. N. M. Lapatyshkin. *Vest. Met.* 1937, No 5, 8-13; *Chem. Zentr.* 1938, I, 3824. Cr Si-V steel contg. C 0.87, Mn 0.28, Si 1.66, Cr 0.28 and V 1.25% forms a large amt. of residual austenite during hardening which is decompd. upon annealing to give a martensite structure. The hardening temp. and the period of treatment have a marked influence on the properties of the steel, because the enrichment of the austenite with carbide is rapid and considerably larger amts. are formed than in the case of high-speed steel. With suitable annealing a hardness is obtained which is scarcely less than that of high-speed steel; the max. hardness is attained at an annealing temp. essentially lower than is required for high-speed steel. The max. of the austenite decompn. in the first stage is at about 880°. This temp. is recommended for an isothermal accelerated tempering. Cr-Si-V steel always gives definitely less decarbonization than high-speed steel. The cutting properties of the steel are satisfactory. The steel is suitable for tools for use in heat-treatment processes.

M. G. Moore

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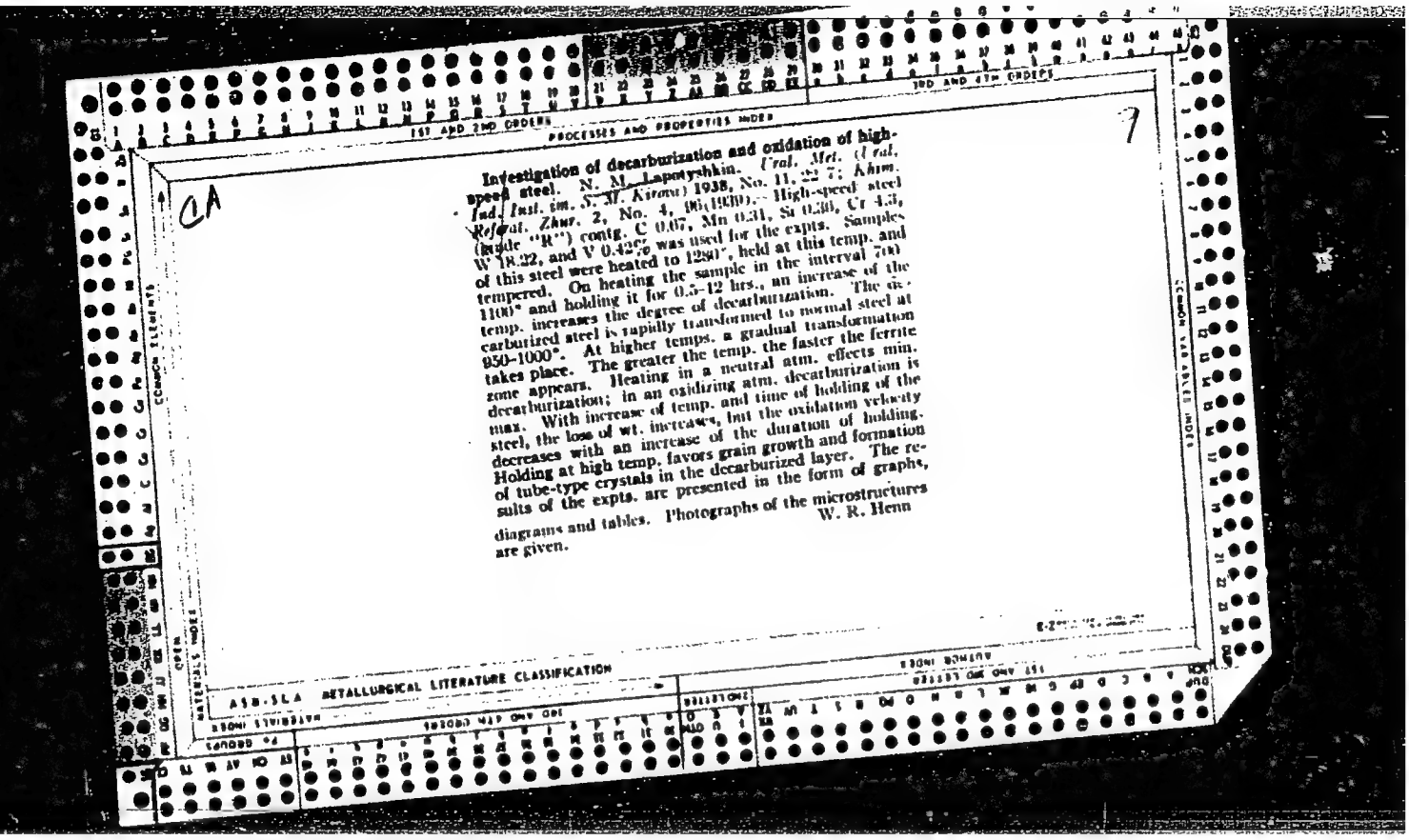

PROCESSES AND PROPERTIES INDEX

CA

7

Investigation of decarburization and oxidation of high-speed steel. N. M. Lapotyshkin. *Ural. Met. (Ural. Ind. Inst. im. S. M. Kirova)* 1938, No. 11, 22-7; *Khim. Referat. Zhur.* 2, No. 4, 90(1939).—High-speed steel (grade "R") contg. C 0.07, Mn 0.31, Si 0.30, Cr 4.3, W 18.22, and V 0.42% was used for the expts. Samples of this steel were heated to 1280°, held at this temp. and tempered. On heating the sample in the interval 700-1100° and holding it for 0.5–12 hrs., an increase of the temp. increases the degree of decarburization. The decarburized steel is rapidly transformed to normal steel at 950–1000°. At higher temps. a gradual transformation takes place. The greater the temp. the faster the ferrite zone appears. Heating in a neutral atm. effects min. decarburization; in an oxidizing atm. decarburization is max. With increase of temp. and time of holding of the steel, the loss of wt. increases, but the oxidation velocity decreases with an increase of the duration of holding. Holding at high temp. favors grain growth and formation of tube-type crystals in the decarburized layer. The results of the expts. are presented in the form of graphs, diagrams and tables. Photographs of the microstructures are given.

W. R. Henn

METALLURGICAL LITERATURE CLASSIFICATION

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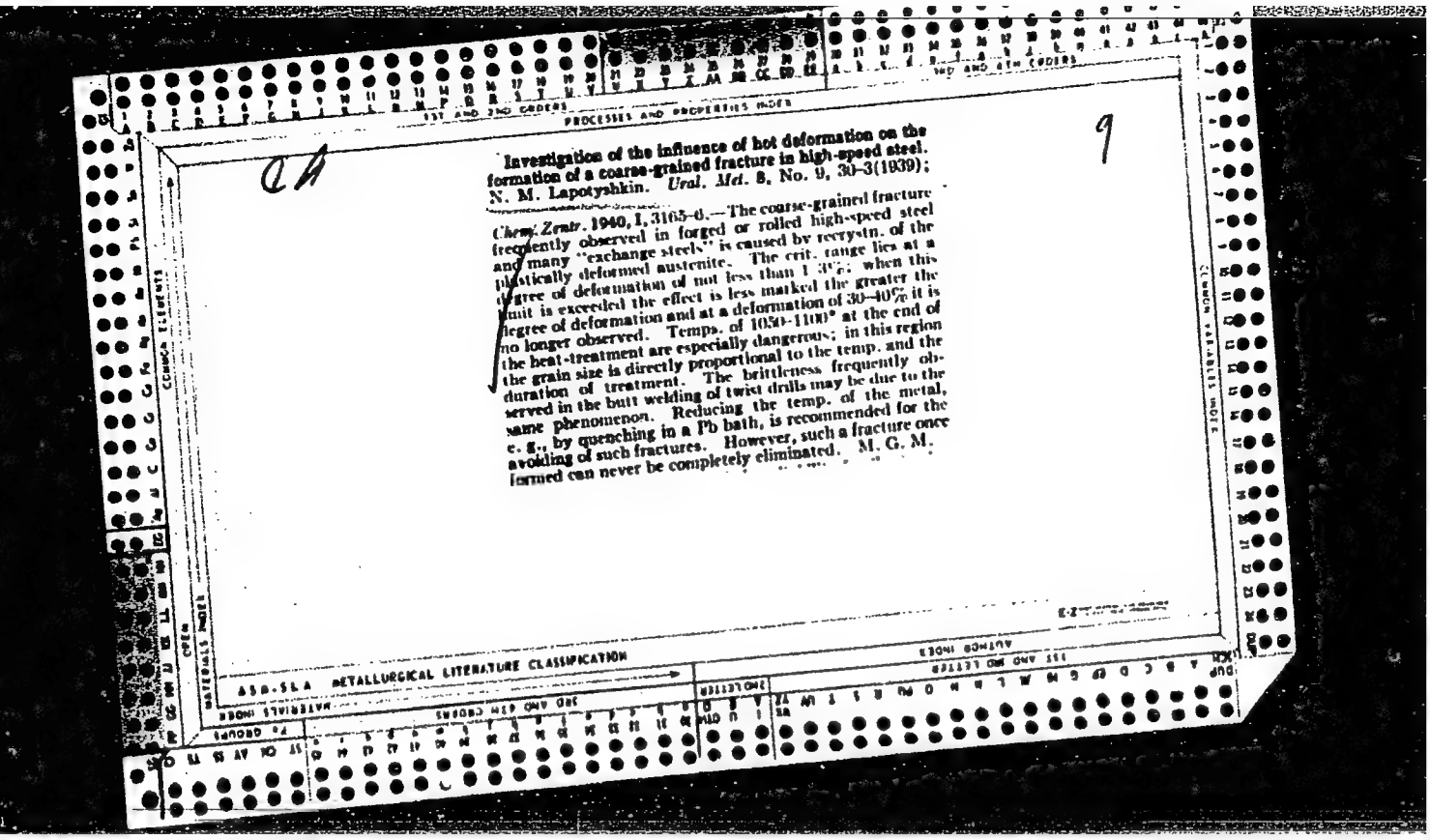

Investigation of the influence of hot deformation on the formation of a coarse-grained fracture in high-speed steel. N. M. Lapotyshkin. *Ural. Met.* 8, No. 9, 30–3(1939); *Chem. Zentr.* 1940, I, 3165–6.—The coarse-grained fracture frequently observed in forged or rolled high-speed steel and many "exchange steels" is caused by recrystn. of the plastically deformed austenite. The crit. range lies at a degree of deformation of not less than 1 30%; when this limit is exceeded the effect is less marked the greater the degree of deformation and at a deformation of 30–40% it is no longer observed. Temps. of 1030–1100° at the end of the heat-treatment are especially dangerous; in this region the grain size is directly proportional to the temp. and the duration of treatment. The brittleness frequently observed in the butt welding of twist drills may be due to the same phenomenon. Reducing the temp. of the metal, e. g., by quenching in a Pb bath, is recommended for the avoiding of such fractures. However, such a fracture once formed can never be completely eliminated. M. G. M.

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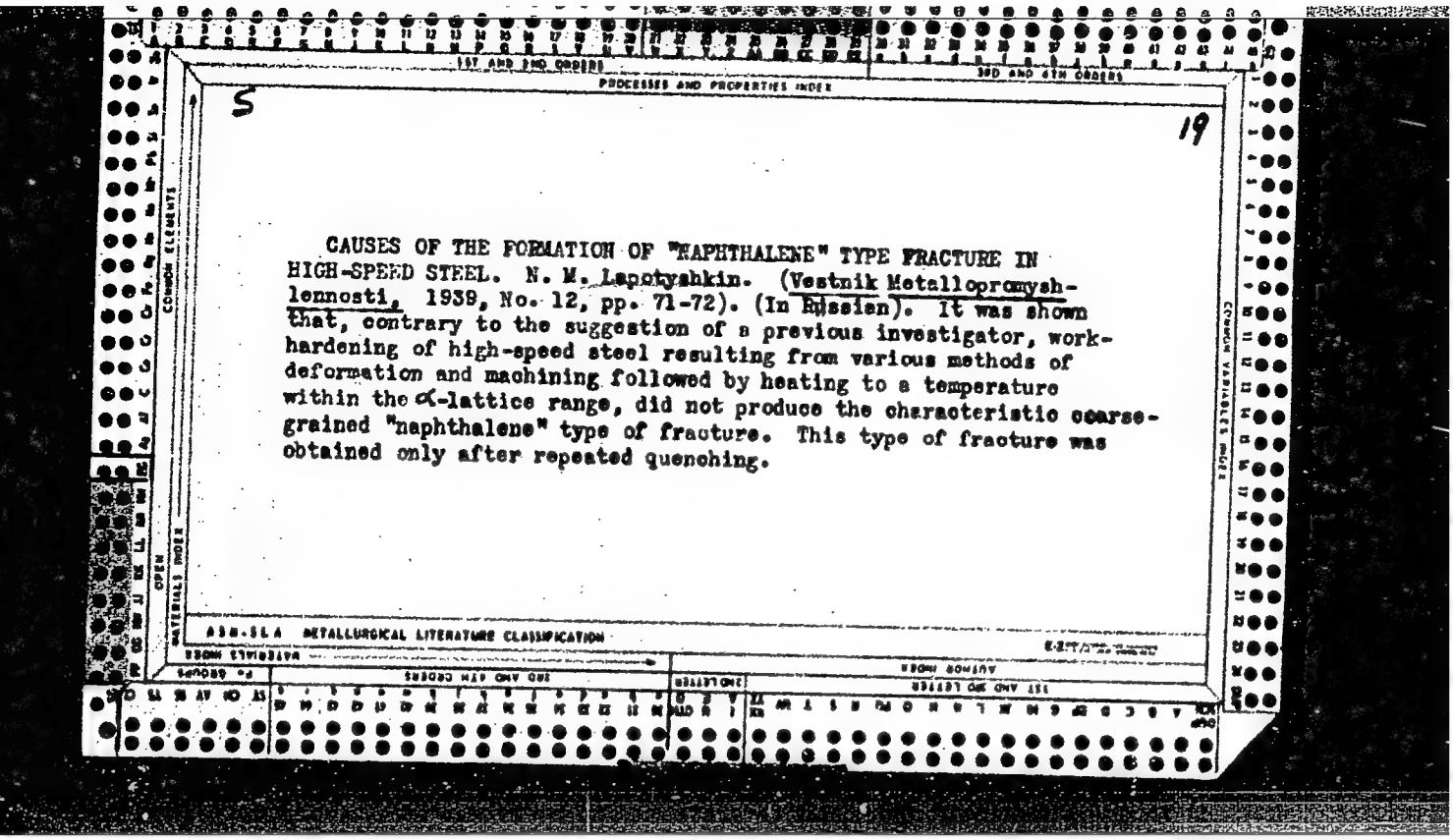

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CAUSES OF THE FORMATION OF "NAPHTHALENE" TYPE FRACTURE IN HIGH-SPEED STEEL. N. M. Lapotyshkin. (Vestnik Metalloprom-yshlennosti, 1939, No. 12, pp. 71-72). (In Russian). It was shown that, contrary to the suggestion of a previous investigator, work-hardening of high-speed steel resulting from various methods of deformation and machining followed by heating to a temperature within the α-lattice range, did not produce the characteristic coarse-grained "naphthalene" type of fracture. This type of fracture was obtained only after repeated quenching.

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IAPOTESHKIN, N.

"Formation of 'Napthalene' Fracture in Heat Treating High Speed Steel," Stal', 10, No.4, pp. 28-34, 1940

Evaluation B-58884

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LAPOTYSHKIN, N.M.

DUBROV, N.F., kand. tekhn. nauk; MIKHAYLOV, O.A., kand. tekhn. nauk; FEL'DMAN, I.A.; DANILOV, A.M.; SOROKIN, P.Ya., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; BUTAKOV, D.K., kand. tekhn. nauk, dots.; SOYFER, V.M.; LATASH, Yu.V., mladshiy nauchnyy sotrudnik; ZAMOTAYEV, S.P.; BEYTEL'MAN, A.I.; SAPKO, A.I.; PETUKHOV, G.K., kand. tekhn. nauk; YEDNERAL, F.P., kand. tekhn. nauk, dots.; LAPOTYSHKIN, N.M., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; ROZIN, R.M.; NOVIK, L.M., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; LAVRENT'YEV, B.A.; SHILYAYEV, B.A.; SHUTKIN, N.I.; GNUCHEV, S.A., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; LYUDEMAN, K.F., doktor-inzh., prof.; GHUZIN, V.G., kand. tekhn. nauk; BARIN, S.Ya.; POLYAKOV, A.Yu., kand. tekhn. nauk; FEDCHENKO, A.I.; AGEYEV, P.Ya., prof., doktor; SAMARIN, A.M.; BOKSHITSKIY, Ya.M., kand. tekhn. nauk; GARNYK, G.A., kand. tekhn. nauk; MARKARYANTS, A.A., kand. tekhn. nauk; KRAMAROV, A.D., prof., doktor tekhn. nauk; TEDER, L.I.; DANILOV, P.M.

Discussions. Biul. TSNIICHM no.18/19:69-105 '57. (MIRA 11:4)

1. Direktor Ural'skogo instituta chernykh metallov (for Dubrov). 2. Direktor TSentral'nogo instituta informatsii chernoy metallurgii (for Mikhaylov). 3. Nachal'nik nauchno-issledovatel'skogo otdela osobogo konstruktorskogo byuro tresta "Elektropech'" (for Fel'dman). 4. Nachal'nik martenovskoy laboratorii Zlatoustovskogo metallurgicheskogo zavoda (for Danilov, A.M.). 5. Laboratoriya protsessov stalevareniya Instituta metallurgii Ural'skogo filiala AN SSSR (for Sorokin).

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DUBROV, N.F.---(continued) Card 2.

6. Ural'skiy politekhnicheskiy institut (for Butakov). 7. Starshiy inzhener Bryanskogo mashinostroitel'nogo zavoda (for Soyfer). 8. Institut elektrosvarki im. Patona AN URSR (for Latash). 9. Nachal'nik TSentral'noy zavodskoy laboratorii "Uralmashzavoda" (for Zamotayev). 10. Dnepropetrovskiy metallurgicheskiy institut (for Sapko). 11. Moskovskiy institut stali (for Yedneral). 12. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Gmuchev, Lapotyshkin). 13. Starshiy master Leningradskogo zavoda im. Kirova (for Rozin). 14. Institut metallurgii im. Baykova AN SSSR (for Novik, Polyakov, Garnyk). 15. Nachal'nik tekhnicheskogo otdela zavoda "Bol'shevik" (for Lavrent'yev). 16. Starshiy inzhener tekhnicheskogo otdela Glavspetsstali Ministerstva chernoy metallurgii (for Shilyayev). 17. Zamestitel' nachal'nika tekhnicheskogo otdela zavoda "Elektrostal'" (for Shutkin). 18. Freybergskaya gornaya akademiya, Germanskaya Demokraticheskaya Respublika (for Lyudeman). 19. Zaveduyushchiy laboratoriyey stal'nogo lit'ya TSentral'nogo nauchno-issledovatel'skogo instituta tekhnologii i mashinostroyeniya (for Gruzin). 20. Starshiy master elektrostaleplavil'nykh pechey Uralvagonzavoda (for Barin). 21. Zamestitel' nachal'nika elektrostaleplavil'nogo tsekha zavoda "Sibelektrostal'" (for Fedchenko). 22. Zaveduyushchiy kafedroy metallurgii stali i elektrometallurgii chernykh metallov Leningradskogo politekhnicheskogo instituta (for Ageyev). 23. Zamestitel' direktora Instituta metallurgii im. Baykova AN SSSR, chlen-korrespondent AN SSSR (for Samarin).

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DUBROV, N.F.---(continued) Card 3.
24. Nachal'nik laboratorii TSentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii (for Bokshitskiy). 25. Zaveduyushchiy kafedroy elektrometallurgii Sibirskogo metallurgicheskogo instituta (for Kramarov). 26. Nachal'nik elektrostaleplavil'nogo tsekha Kuznetskogo metallurgicheskogo kombinata (for Tedor). 27. Nachal'nik elektrometallurgicheskoy laboratorii Kuznetskogo metallurgicheskogo kombinata (for Danilov, P.M.).
(Steel--Metallurgy)

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LAPOTYSHKIN, N.M.

VARNAVSKIY, I.N.; MIKHAYLIKOV, S.V., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; BAPTIZMANSKIY, V.I., kand. tekhn. nauk, dots.; LEVIN, S.L., prof., doktor tekhn. nauk.; OYKS, G.N., prof., doktor tekhn. nauk; GERBER, M.S.; BIGEYEV, A.M., kand. tekh. nauk, dots.; LIFSHITS, S.I., kand. tekhn. nauk; POLYAKOV, A.Yu., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; POPANOV, A.A., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; OGRYZKIN, Ye.M.; GONCHARENKO, N.I., kand. tekhn. nauk; ABRAMOV, B.A., nauchnyy sotrudnik; MALINOVSKIY, V.G.; LAPOTYSHKIN, N.M., kand. tekhn. nauk; AFANAS'YEV, S.G., kand. tekhn. nauk; SHUMOV, M.M., starshiy nauchnyy sotrudnik; IVANOV, Ye.V.; EPSHTEYN, Z.D., starshiy nauchnyy sotrudnik.

Discussions. Biul. TSNIICHM no.18/19:107-119 '57. (MIRA 11:4)

1. Nachal'nik konvertornogo tsekha Orsko-Khalilovskogo kombinata (for Varnavskiy. 2. Institut metallurgii Ural'skogo filiala AN SSSR (for Mikhaylikov, Abramov). 3. Direktor Ukrainskogo instituta metallov (for Goncharenko). 4. Dnepropetrovskiy metallurgicheskiy institut (for Baptizmanskiy, Levin). 5. Zaveduyushchiy kafedroy metallurgii stali Moskovskogo instituta stali (for Oyks). 6. Zaveduyushchiy laboratoriyey Yenakiyevskogo metallurgicheskogo tekhnikuma (for Gerber). 7. Kafedra metallurgii stali Magnitogorskogo gorno-metallurgicheskogo instituta (for Bigeyev). 8. Rukoboditel' konverternoy gruppy TSentral'noy zavodskoy laboratorii zavoda im. Petrovskogo (for Lifshits). 9. Institut metallurgii im. Baykova AN SSSR (for Polyakov).

(Continued on next card)

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VARNAVSKIY, I.N.---(continued) Card 2.

10. Ural'skiy institut metallov (for Fofanov). 11. Institut chernoy metallurgii AN USSR (for Ogryzkin). 12. Nachal'nik TSentral'noy zavodskoy laboratorii Yenakiyevskogo metallurgicheskogo zavoda (for Malinovskiy). 13. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Lapotyshkin, Shumov, Epshteyn). 14. Nachal'nik konverternoy laboratorii TSentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii (for Afanas'yev). 15. Nachal'nik laboratorii Vsesoyuznogo nauchno-issledovatel'skogo instituta ogneuporov (for Ivanov).

(Bessemer process)

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Lapotyshkin, N.M.

LAPOTYSHKIN, N.M., kand.tekhn.nauk; SHUMOV, M.M., inzh.; EPSHTEYN, Z.D., inzh.

Smelting electrical steel in converters with top oxygen blow and its continuous pouring. Biul. TSNIICHM no.23:17-21 '57. (MIRA 11:2)

(Bessemer process)

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78191
SOV/133-60-3-16/24

AUTHOR: Lapotyshkin, N. M. (Candidate of Technical Sciences)

TITLE: Cooling Rates for Cast Billets of High-silicon Steels

PERIODICAL: Stal', 1960, Nr 3, pp 259-263 (USSR)

ABSTRACT: This is an investigation of crack formation during cooling of transformer steel cast billets. It was carried out by means of an instrument detecting the sound oscillations during crack formation, enabling the establishment of rational cooling rates for cast slabs and square billets, and further enabling the finding of rates for complete method elimination of crack formation. The schematic diagram of the instruments detecting the sound oscillations is shown in Fig. 1. The experiment was carried out on square billets 200x200 mm. and slabs 150x470 mm from electric-furnace steel. Figure 2 shows cooling curves of the billets depending on silicon content (A) and on cooling conditions (B). The vertical

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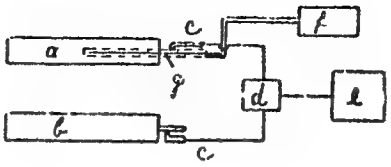

Fig. 1.

Fig. 1. Schematic diagram of the instrument detecting the sound oscillations during crack formation: (a) investigated billet; (b) standard billet from soft steel; (c) electromagnetic sound pickups of "star" type; (d) double-passage amplifier; (e) type BP-102 electronic potentiometer; (f) ditto for temperature registration; (g) tube with thermocouple.

marking lines on the curves indicate the moment and temperature of appearance of sound impulses. Individual curves in Fig. 2. correspond to the following experimental conditions:

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Cooling Rates for Cast Billets of High-silicon Steels

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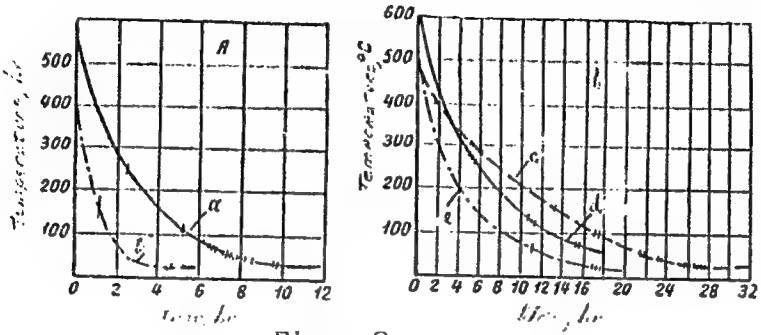

Fig. 2.

Fig. 2. The temperature interval of crack formation in transformer steel depending on silicon content (A) and cooling conditions (B).

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Cooling Rates for Cast Billets of High-silicon Steels

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SOV/133-60-3-16/24

Key for Table A. (a) Curves in Fig. 2; (b) silicon content; (3) speed of cooling.

(a)		a	b	c	d	e
(b)	Si, %	4.20	3.48	4.66	4.20	4.04
(c)	°C/hr :					
	300°	125	150	35	75	85
	500 to 30°	33	70	13	18	20

To determine optimum cooling rates, the cooling of billets was performed in seven different ways. As a result of investigation, the following conclusions were made: (1) The decrease of silicon contents from 4.0-4.5 to 2.8-3.5 resulted in a decrease of number of cracks. (2) Use of high temperature tempering at 700° C for steel containing 4-4.5% Si, also decreases the number of cracks and lowers the temperature of their formation. (3) The square billets 200x200 mm produced by continuous casting have higher resistance to cold crack formation than cast 150x407 mm slabs of the same chemical composition. (4) The following cooling

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Cooling Rates for Cast Billets of High-silicon Steels

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SOV/133-60-3-16/24

rates are recommended: (a) for slabs from high silicon steel, high temperature tempering at 700° C with subsequent slow cooling 12-15° per hr; (b) for cast square billets with up to 3.5% Si, slow cooling in a tight stockpile; (c) for cast square billets with over 3.5% Si, high temperature tempering at 700° C with subsequent slow cooling in a tight stockpile under a hood. Credit is given for the participation of Rubenchik, Yu. Ye., Bolotov, I. B., Mazun, A. I., Kokareko, N. M., Lebedkin, N. I., Serebrennikov, A. V. There are 5 figures; 1 table; and 3 Soviet references.

ASSOCIATION: Central Scientific Research Institute of Ferrous Metallurgy (TsNIIChM)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

S/130/60/000/006/002/011

AUTHOR: Lapotyshkin, N. N., Learned Secretary

TITLE: The Work of TsNIIChM

PERIODICAL: Metallurg, 1960, No. 6, pp. 3-4

TEXT: General information is given on the work of the Central Scientific-Research Institute of Ferrous Metallurgy (TsNIIChM) which is mainly concentrated on the development and introduction of comprehensive automatization and mechanization of metallurgical industrial processes at the Magnitogorsk, Kuznetsk and the Nizhniy-Tagil' metallurgical combines. For this purpose it will be important to develop physico-chemical methods of metal analysis during melting process by photo-electric spectral analysis using quantometers and pneumatic supply of the samples to the laboratory. Some new devices are being designed for the automatic measurement of the thickness of hot slabs and of the temperature of liquid steel. Besides the problems dealing with mechanization and automation the Institute performs a series of scientific research work including the following subjects: use of natural gas and oxygen in blast furnaces of "Zaporozhstal'" and other plants; development of [illegible] converter steel production with oxygen blast; desiliconization and

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desulfurization of cast iron on a 1,300-ton-mixer of "Zaporozhstal'"; refining of converter and open-hearth metal in a ladle with synthetic slags at KMK and NTMK; introduction of electric slag welding for the production of ball bearing high-precision steel and 1Kh18N9T (1Kh18N9T) steel for thin-walled pipes; development of continuous casting and production of transformer steel at the Novolipetskiy metallurgical plant; introduction and use of continuous casting machines at the Stalino metallurgical plant; production of high-quality transformer steel using intermediate thermal furnaces at the Novosibirsk metallurgical plant; saving of nickel and deficient alloying elements; introduction of new stainless and heat-resistant steel grades; development and introduction of new high-precision alloys with special properties; theoretical and experimental work on the direct reduction of iron; improvement and extension of converter steel production with oxygen blast; development of a new continuous steel-melting process; theoretical and experimental work on vacuum metallurgy and on methods of ultrasonic oscillations in crystallization processes of metals. Furthermore the activities of the Institute are concentrated on research work in the theory of metallurgical processes and physics of metals; use of achievements in nuclear physics for metallurgy. The scientists carry out studies on the theory of quench-hardening and tempering of steel; martensite transformations; the equivalent

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distribution of elements between the metal and the slag during melting process; kinetics of metallurgical reactions; use of artificial radioactive isotopes for the investigation and checking of metallurgical process. One of the most interesting trends in the theoretical work is the experimental investigation how to obtain defectless metal crystals with a strength approaching the theoretical values. Important work is performed on the economy in new techniques, mechanization and automation. New standards and technical specifications will be set up in 1960

ASSOCIATION: TsNIITChM

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LAPOTYSHKIN, N.M., kand.tekhn.nauk

Studying the technical and economic indices of the converter method of steelmaking with use of oxgen, as compared to the open-hearth method. Stal' 20 no.10:899 O '60. (MIRA 13:9)
(Steel--Metallurgy)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOTYSHKIN, N.M.

Working out methods and means for measuring molten metal temperatures inside converters during blowing. Stal' 20 no.10:899 O '60.
(MIRA 13:9)

(Thermocouples)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

S/133/60/000/010/010/013
A054/A029

AUTHOR: Lapotyshkin, N.M., Candidate of Technical Sciences

TITLE: News in Brief

PERIODICAL: Stal', 1960, No. 10, p. 935

TEXT: In the course of establishing some parameters of the 1450 MMK (1450 MMK) type mill, tests were carried out in the Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Scientific Research Institute of Ferrous Metallurgy) to determine the relationship between the displacement of the clamp bolts and the changes in the thickness of the strip. Methods for applying additional reductions in order to eliminate deviations in the thickness of the strip along its length, which can be used in the automatic regulation of the strip thickness, were also developed. Tests were carried out in order to discover the nature of the metal flow and the field of forces at the center of deformation. In these rolling tests on aluminum sheets 42 x 20 x 300 mm in size, photography, rollers of special design and special dynamometers were applied. Tests were carried out on the roughing, two-high stand of the 2350 type medium plate mill. By applying special instruments designed in the TsNIIChM and transmitters for meas-

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News in Brief

uring the metal pressure on the roller, the torques in the spindles, the metal temperature during the pass, the statical component of the motor current, etc, it was possible to establish the specific metal pressure on the roller from the load of the roll mill motor, to analyze the law governing the temperature drop of the metal between two passes, as well as the relationship between the specific pressure and other technological parameters of rolling. The deformation and the stresses during transverse rolling were investigated by a special method. It was found that in this process the axial destruction of the metal is preceded by a plastic deformation in the center of the billet, while the destruction is mainly caused by transverse tensile stresses. The power conditions of hollow rolling on a two-high stand, the axial slip of the metal in relation to the roller and the conditions of the secondary bite of the billet were also examined, the metal pressure was measured and the relationship between this pressure and the principal parameters of the pressure were defined. The examination of the principal parameters of hollow rolling on the power and speed conditions of the process showed that hollow rolling on three-high mills is possible with less axial slip and lower power consumption than in two-high mills. The tests proved that it is possible to expand tubes on the three-high mill with tapered and barrel-shaped rolls, with elongation coefficients between 1.3 - 1.75. The results obtained for metal pressure on the rolls, motor load, power consumption, speed characteristics

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of the process, etc, can be applied in designing and operating the three-high tube rolling mills.

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A054/A029

AUTHOR: Lapotyshkin, N.M., Candidate of Technical Sciences

TITLE: News in Brief

PERIODICAL: Stal', 1960, No. 10, p. 953

TEXT: In the Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Scientific Research Institute of Ferrous Metallurgy) the weldability of low-alloy steels and the vibration strength of welded seams were investigated. The tests were carried out in order to study the properties of the zone of welding seam and the vibration strength of flat specimens with longitudinal deposit welding, made of low-alloy steels of 14ХГС, 14ГС, 15ГС, (14KhGS, 14GS, 15GS) and low carbon Ст. 3кп (St. 3kp) types. It was found that the toughness of the low-alloy steels tested at single-valued asymmetric cycles of loading is 30 - 50% higher than that of the St. 3kp type steel. The relation between the toughness limit of low-alloy steels and that of low-carbon steels approximates the relation between their yield points. The toughness limit of specimens with longitudinal deposit welding depends on the welding conditions. Its maximum values correspond to the optimum properties of the welding zone determined by rolling tests.

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LAPOTYSHKIN, N.M.; KOROBOVA, N.A.; BARANOVA, N.A.

Properties of high silicon electrical steel prepared by continuous casting. Biul. TSIICHM no.2:42-44 '61. (MIRA 14:9)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Lapotyshkin, Korobova). 2. Ural'skiy institut chernykh metallov (for Baranova).
(Steel--Electric properties)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000928620011-2

LAPOTYSHKIN, N.M.; SLIVCHANSKAYA, V.V.; KOKAREKO, N.M.; FADEYEV, P.V.; PRAVDINA, T.E.

Rolling electrical steel slabs prepared by continuous casting on strip mills with hot reelers. Biul.TSIICHM no.4:38-40 '61. (MIRA 14:10)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Lapotyshkin, Slivchanskaya). 2. Novolipetskiy metallurgicheskiy zavod (for Pravdina).
(Rolling (Metalwork))

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A054/A127

18.3200

AUTHOR: Lapotyshkin, N. M., Candidate of Technical Sciences

TITLE: News in brief

PERIODICAL: Stal', no. 4, 1961, 321

TEXT: 1) In the Tsentralnyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Scientific Research Institute of Ferrous Metallurgy), in co-operation with the Ukrainskiy nauchno-issledovatel'skiy institut metallov (Ukrainian Scientific Research Institute of Metals) and the Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov (Ural Scientific Research Institute of Ferrous Metals) the technology of continuous casting of rimming and semi-killed steel in 200 x 200 mm crystallizer was developed and adapted to the operational conditions of the Novo-Tulskiy metallurgicheskiy zavod (Novo-Tula Metallurgical Plant). High-grade billets for rolled sections can be produced by this method. In order to weld the blowholes below the surface together, the cast billets must be heated uniformly to a higher temperature and must be reduced more intensively during the first passes than rolled billets of the same size. 2) The technology of contin-

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News in brief

uous casting of transformer steel (130 x 620 mm slabs) meeting the requirements of the operational conditions of the Novo-Tula Metallurgical Plant was established by the Central Scientific Research Institute and the Ural Scientific Research Institute of Ferrous Metals, and various plants. The metal temperature in the intermittent ladle must be 1525 - 1550°C, the diameter of the pouring ladle nozzle: 30 mm; pouring speed: 0.8 m/min; water consumption for second cooling: 0.48 - 0.82 l/kg of steel. To eliminate cold cracks the transformer steel slabs are tempered at 600 - 700°C by slow cooling. Transformer steel slabs with 3 - 5.28% Si content were rolled on the Steckel-mill in this factory. When rolling the slabs on the blooming mill with 5 passes instead of 7, at a temperature increased to 1280°C, the sintering of the blisters was promoted and waste due to skin formation was lower. Hot-rolled transformer steels, 0.5 and 0.35 mm thick made of heats with high Si content displayed good electromagnetic properties equal to those of 342 (E42) and 343 (E43) steels. In the Novosibirsk plant an increased amount of skin was observed in cold-rolled transformer steel sheets, caused by blisters near the surface of slabs. 3) The technology of continuous casting of killed carbon steel into 130 x 620 mm slabs was studied in

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News in brief

the UNRS-NTMZ. In order to prevent external cracks at the broad edges of cast slabs (130 x 150 x 650 mm) from Ст.3сп (St.3sp) and 65Г (65G) steel, the effect of the profile, the conicity and the length of the crystallizer, the fixing of the copper walls, the reciprocating movement of the crystallizer, steel-composition, etc. were studied. The metal flowing into the crystallizer carries away the solidifying skin and decreases the resistance against tensile stresses. In order to reduce this effect of the metal jet, two nozzles were used for pouring and the metal flow was diverted in the direction of the small edges, where stresses are less active. Due to the asymmetric arrangement of pouring in the Novo-Lipetsk plant slabs, 1020 mm in width could be cast in the crystallizer from St.3 steel (max. 0.18% C and max. 0.020 S) without the formation of longitudinal cracks. 4) In continuously cast carbon, transformer and stainless steel ingots there was a more pronounced development of porosity in the central parts than in the conventional ingots with risers and less than in ingots without risers. The quality of the hot-deformed steel of continuous castings was equal to the conventional products, even when reduction was decreased. The average crystallization speed and the density of dendritic structure of continuous

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News in brief

castings is higher, dendritic liquation lower than in the common castings. 5) Radioactive transmitters for the control of continuous casting (YPV/URU/ type) and the system of automatic control of the metal level in the crystallizer of conveyor casting equipment were developed. The system is based on changing the speed of the drawing off process. Results were satisfactory.

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S/129/61/000/009/001/006
E111/E335

AUTHOR: Lapotyshkin, N.M., Candidate of Technical Sciences

TITLE: New Steels and Alloys

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1961, No. 9, pp. 2 - 8

TEXT: In 1960 the TsNIIChM (Central Scientific Research Institute for Ferrous Metallurgy)im. I.P.Bardina carried out work on the theory of strength, the selection of high-strength materials, creation and introduction into practice of new steels and alloys for various purposes (including materials economically alloyed with nickel), development of heat-treatment technology to increase strength, selection of new precision alloys with special properties, introduction of new methods of analysis and on other topics. The author gives an outline of this work. He deals first with strength theory and high-strength materials, work on which has included: direct observation of dislocations; theory of dislocations; physical and mechanical properties of whiskers. Structural peculiarities of the strengthened state were studied with the object of finding the relation between

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New Steels and Alloys

changes in the fine crystal structure and the strength properties after strengthening treatment. Both pure metals and binary alloys were studied. To find the effect of structural disturbances the influence of structural conditions and of small additions of boron and molybdenum were studied. Theoretical study of diffusion under load gave an equation similar to that proposed by S.T. Konobeyevskiy: it was shown for the first time that additional deformation occurs through displacement of the impurity atoms. Thermomechanical treatment of steels enabled tensile strengths of 280 - 300 kg/mm^2 to be obtained. The use of high pressures was found to give improved strength and plasticity. TsNIIChM and the Alchevsk and Novo-Lipetsk Works, jointly carried out works trials on heat-treatment. At Alchevsk the aim was to produce hardened carbon rimming steel (type St.3) strip; research on this is continuing, i.e. to find the reasons for the strengthening of "unhardenable" steels such as this. At the Novo-Lipetsk Works the production of cold-rolled sheet with good magnetic properties has been developed and adopted. TsNIIChM have proposed a method for "warm" drawing of steels

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New steels and alloys ....

which are difficult to deform, which has been adopted at many works, and gives higher output and qualities. In the field of new steels and alloys the organization in 1960 introduced about forty into industry. Type 65ГС (65GS) reinforcement steel, intended to replace type 30ХГ2С (30KhG2S), has been developed and tested, as have types 28ГС2 (28GS2) (similar mechanically to type 25ГС (25GS) (GOST 5058-57) but lower in manganese, tested at Magnitogorsk and Chelyabinsk), and 15ГС (15GS). Replacement of carbon steel by type 14Г2 (14G2) gives a metal saving of about 15-20%; investigation and practical introduction of this steel have continued and about 5 000 tons has been used in blast-furnace construction. Based on laboratory and industrial research TSNIIChM have developed three low-alloy steels for the production of electric-welded tubes on the basis of Orsk-Khalilovo ores: 14ГН (14GN) (tensile strength not under 48 kg/mm^2) has been adopted; 14ХГН (14KhGN) and 15ГН (15GN) (tensile strengths up to 50 kg/mm^2) are undergoing industrial tests. For gas pipes at

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New steels and alloys ....

the Khartsyzsk Works, type 18Г2 (18G2) steel has proved successful. Tubes of "transverse-rolled" 19Г (19G) steel sheet have been found tougher and more ductile than those of "longitudinally-rolled" steel. Heat-treatment of 19G steel with high carbon and manganese contents has been studied and experimental batches of 14Г2 (14G2) and 19ГС (19GS) steels (tensile strengths 50 kg/mm^2) sheets and tubes have been prepared. New structural steels economically alloyed with nickel have been tested and introduced: the types 20ХГНР (20KhGNR) - 20ХНР (20KhNR), recommended by TsNIIChM at the Minskiy traktornyy zavod (Minsk Tractor Works). For diesel starter shafts nickel-free 40ХГР (40KhGR) can be used instead of 40ХНМ (40KhNM). Structural steels should contain 0.05 - 0.06% titanium. Nickel-free steel ЭИ1958 (EI1958), developed by the organization, has been adopted advantageously at two works instead of the 5ХНВ (5KhNV) and 3Х2В8 (3Kh2V8) steels. New stainless low-nickel steels to replace 1Х18Н9 (1Kh18N9) and 1Х18Н9Т (1Kh18N9T) are being sought

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by developing ferrite-austenitic steels (e.g. Х18Т (Kh18T) with small additions of nickel or nickel and manganese) or austenitic steel (nickel replaced by manganese or manganese and nitrogen). The steels developed are 0Х21Н3Т (OKh21N3T), 0Х21Н5Т (OKh21N5T), Х21Н5Т (Kh21N5T), Х21Н6М2Т (Kh21N6M2T), Х14Г14Н (Kh14G14N) and Х14Г14Н3Т (Kh14G14N3T). The nitrogen-containing steels Х17АГ14 (Kh17AG14), 0Х17Н3Г14АБ (OKh17N5G9AB) and Х20Н4Г11АБ (Kh20N4G11AB) are also satisfactory substitutes. Considerable efforts are being made to develop and introduce new heat-resisting steels and alloys: the alloy ЭИ787 (EI787), successfully tested and produced, is a substitute for nickel alloy, giving a saving of 450 kg per ton metal; the figure for ЭИ835 (EI835) steel is 600. TsNIIChM together with the Tsentral'nyy issledovatel'skiy institut mechanicheskoy obrabotki drevesiny (Central Research Institute for Wood-working) and the Gor'kovskiy metallurgicheskiy zavod (Gor'kiy Metallurgical Works) have developed and introduced into the timber industry new steels 9Х5ВФ (9Kh5VF) and Р4 (R4) to replace ХВГ (KhVG) and

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New steels and alloys ....

X12D (Kh12F). Seven new high-speed steels have been included in the new GOST developed by TsNIIChM, giving 2-3-fold increases in tool durability; together with TsNIITMASh high-speed steels have been developed for heat-resisting alloy parts giving 7-8-fold increases in durability. During 1960, over 30 new alloys were accepted by the instrument industry. Structures and properties of Mn-Pd, Mn-Ge, Ni-Mo and other systems were studied. Rhenium and rare-earth elements were used for alloying, a variety of production methods (e.g. vacuum-melting) being adopted. Ti-V-Mo-based alloys and binary and alloyed alloys based on Cr-Ni were found to have promising properties. A good new, magnetically soft iron-aluminium alloy has been developed. Through research on texture-formation a 0.01-0.1 mm thick strip of iron-silicon alloy with a cubic texture and rectangular hysteresis loop has been obtained. Textured iron-aluminium alloys can sometimes replace iron-cobalt alloys. Two new alloys for current-carrying springs have been proposed. Alloys for joints with new glass have been developed and their properties studied; a new production method

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New steels and alloys

for wide ... New and old-resistance alloys have been studied as ... strain-gauge materials. Work on magnetic materials ... the following study of the effect of magnetization conditions on the properties of magnetically soft materials, the results being used in new recommendations for testing methods. Study of the effects of neutron irradiation showed that this could lead to increased as well as decreased ordering of atoms in such materials. Non-metallic inclusions were found to affect a zone 10-15 times their own size. New alloys with high magnetic energy have been developed. TsNIIChM have paid much attention to theoretical studies. The relations between magnetic and other energies and crystallographic factors in single and poly-crystals and the anisotropy of elastic properties in single crystals were investigated. Other work included studies on phenomena near the Curie point, mechanical properties of ordering alloys, phase diagrams of alloys with superstructure. At the "Elektrostal" Works production trials on the iron-aluminium alloy "alfenol" (a possible substitute for permalloys) developed by TsNIIChM have been carried out. A dispersion-

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New steels and alloys ....

hardening alloy for hair springs has been introduced into the watchmaking industry. An improved machine for working temperatures of 1 200 °C has been introduced. Improvements were made during 1960 in research methods and instruments, including high-pressure test equipment, neutron-diffraction apparatus, a device (industrial model) which reduces the amount of radioactive isotopes introduced into the open-hearth furnace for process-study purposes.

ASSOCIATION: TsNIIChM

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